United States Joint Forces Command
Joint Warfighting Center

Virtual Interoperability
A Step Towards an Integrated LVC Training Environment

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Purpose

- **To provide an information brief on the need to form a Joint Training Environment Interoperability Integrated Product Team (JTE IIPT) with membership from across the Services and USSOCOM to develop interoperability standards for an integrated Joint Live, Virtual, and Constructive training environment**

Outline

- **Background**
- **High-Level Directives and Authorities (3)**
- **Problem Statement**
- **Proposed Solution**
- **Proposed Service and SOCOM Leads**
- **Resourcing**
- **Conclusion**

Background

- **Virtual integration component historically under-resourced, under-developed capability and used in events in an ad hoc nature (exercise-by-exercise basis)**
- **Representatives from Air Force and Navy have indicated a desire to help with providing solutions**
- **Future training systems, like the Joint Strike Fighter, need one standard to build to be interoperable with the Joint Training Environment**
- **Joint Fires Executive Steering Committee received request from Services to integrate virtual simulators in support of Joint Fires training**
- **JNTC's Architecture and Technical Standard's (JATS) team leads the Joint Training Enterprise in documentation, vetting, and establishing joint training standards for the Joint Training Environment**

Directives and Authorities (1 of 3)

- **DoD Directive 1322.18, Joint Training dated 13 Jan 2009 directs JFCOM to:**
  - Develop and maintain open, net-centric, interoperable standards and protocols for LVC joint training systems
  - Manage joint training integrated LVC capability focusing on integration and leveraging of DoD Component developmental activity and fielded capabilities, and the certification of joint training instrumentation, models, federations, and tools optimizing DoD investments

Directives and Authorities (2 of 3)

- **Strategic Plan for Transforming DoD Training dated 5 Feb 2009:**
  - **The integrated LVC training environment, and in particular the concept of stimulating operational sensors and systems with synthetic entities, shall be pursued to improve the relevance and realism of the live training domain. The use of virtual and constructive training capabilities integrated with the live training environment provides a powerful tool against the effects of encroachment.**
  - **JNTC is responsible for integrating components of the Joint Live, Virtual, and Constructive Training Environment (JLVC-TE) leveraging Service capabilities and developments, establishing the connecting communications infrastructure, and sustaining the infrastructure and JLVCTE to benefit not only joint training, but Service Title X training when capacity permits.**
  - **JFCOM, in coordination with Combatant Commanders, will develop and promulgate a set of standardized interfaces to integrate emerging Service advanced instrumentation and simulation systems across the Live-Virtual-Constructive domains in the operating environments of air, ground and maritime**

Directives and Authorities (3 of 3)

- **DoD Training Transformation I-Plan FY2006 – FY2011 dated 23 Feb 2006**
  - **Concept 3.1: [JNTC] will "prepares forces … with an integrated live, virtual and constructive training environment"**
  - **Action 3.3.1: "Conduct a requirements analysis and develop the functional and technical requirements for the integrated live, virtual and constructive environment."**
  - **Action 3.3.2: Establish infrastructure for, and interoperability between, integrated live, virtual, and constructive training systems …"**

Problem Statement

- **Our current list of standards and protocols is not particularly useful. The Joint Training Environment needs a more granular set of interoperability standards and protocols that provide the means for ensuring an integrated live virtual and constructive training environment.**

- **In order to integrate into the Joint Training Environment new training system developers require a more refined set of interoperability standards**

Proposed Solution

- **Technical Development, Innovation Branch (TDIB) and the JNTC Architecture and Technical Standard's (JATS) representatives, will immediately begin cataloging existing virtual simulator platforms and the standards used to integrate into the JLVC federation integrating architecture**

- **The Joint Training Enterprise, under the leadership of JFCOM, will form an LVC Interoperability IPT, using the JSF virtual simulator as the use case, to define Joint Training Environment interoperability standards and protocols**

- **End state: an integrated architecture that allows component architectures to interoperate between and among themselves.**

Service and SOCOM leads

- **Request Service and SOCOM identify an LVC IIPT lead**
  - **USA:**
    - **PEO-STRI**
    - **National Simulation Center**
    - **DAMO-TRS**
  - **USAF:**
    - **CAF DMO**
    - **DMOC**
    - **AFAMS**
    - **ACC**
  - **USN:**
    - **FFC**
    - **NWDC**
    - **NAWCTSD**
  - **USMC**
    - **TECOM**
    - **PM TRASYS**
    - **MCTOG**
  - **SOCOM**

Resourcing

- **JFCOM resources to support this effort are provided by JNTC Advanced Training Technologies (ATT) and Joint Simulation System programs**
- **IAW JNTC FY10 program execution plan Air Force is funded at $200K to support virtual interoperability**
- **For FY10 this will have to be a "coalition of the willing"**

Conclusion

- **The development of an integrated Live, Virtual, and Constructive Training Environment requires an enterprise approach to the development of interoperability standards**

- **The LVC Interoperability IPT will initially focus on the integration of virtual simulators into the JLVC integrating architecture**